

## **CLAIMS :**

1. A display device comprising a display module which determines a plurality of  $n$  ( $n$  is an integer equal to or more than 2) pieces of pixels as belonging to one block unit, selects the plurality of pixels in each block unit at the same time and displays a picture image by adding one or a plurality of specific patterns each having different spatial frequencies of each block unit; a display control unit which controls the display module; a picture image signal generation unit which generates picture image signals; and a computing circuit which generates the specific patterns each having different spatial frequencies while weighting the same based on the picture image signals for every block unit.
  2. A display device according to claim 1, wherein the computing circuit is a means for generating  $n$  pieces of specific patterns each having different spatial frequencies which are weighted based on the picture image signals for every block unit, and the display module is a means for displaying a picture image by adding  $N_p$  (which is an integer smaller than  $n$ ) pieces of the specific patterns.
  3. A display device according to claim 2, further

comprising a compression rate regulation unit which modifies the number of pieces  $N_p$  of the specific patterns to be applied.

- 5 4. A display device according to claim 2, further comprising a high compression rate computing circuit which modifies the number of the specific patterns to be added for every block unit.

10 5. A display device according to claim 1, wherein the display module includes a panel in which the pixels are arranged in a matrix shape, a signal driver, a scan driver and opposing signal driver; signal lines connected to the signal driver; scan lines connected to the scan driver; and opposing signal lines connected to the opposing signal driver; each of the pixels includes a signal electrode, opposing signal electrode and a switch element, the signal electrode is connected to one of the signal lines via the switch element, the opposing signal electrode is connected to one of the opposing signal lines, a first potential is applied to the signal electrodes provided for the pixels on a same line included in a same block unit, a second potential is applied to the opposing signal electrodes provided for the pixels on a same row included in the same block unit, a certain specific pattern is formed by the first and second potentials

for the same block unit concerned and one of the common opposing signal lines is connected to the opposing signal electrodes provided for the pixels on the same line.

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6. A display device according to claim 2, wherein the display module includes a panel in which the pixels are arranged in a matrix shape, a signal driver, a scan driver and opposing signal driver; signal lines connected to the signal driver; scan lines connected to the scan driver; and opposing signal lines connected to the opposing signal driver; each of the pixels includes a signal electrode, opposing signal electrode and a switch element, the signal electrode is connected to one of the signal lines via the switch element, the opposing signal electrode is connected to one of the opposing signal lines, a first potential is applied to the signal electrodes provided for the pixels on a same line included in a same block unit, a second potential is applied to the opposing signal electrodes provided for the pixels on a same row included in the same block unit, a certain specific pattern is formed by the first and second potentials for the same block unit concerned and one of the common opposing signal lines is connected to the opposing signal electrodes provided for the pixels on the same line.

7. A display device according to claim 3, wherein the display module includes a panel in which the pixels are arranged in a matrix shape, a signal driver, a scan driver and opposing signal driver; signal lines connected to the signal driver; scan lines connected to the scan driver; and opposing signal lines connected to the opposing signal driver; each of the pixels includes a signal electrode, opposing signal electrode and a switch element, the signal electrode is connected to one of the signal lines via the switch element, the opposing signal electrode is connected to one of the opposing signal lines, a first potential is applied to the signal electrodes provided for the pixels on a same line included in a same block unit, a second potential is applied to the opposing signal electrodes provided for the pixels on a same row included in the same block unit, a certain specific pattern is formed by the first and second potentials for the same block unit concerned and one of the common opposing signal lines is connected to the opposing signal electrodes provided for the pixels on the same line.

8. A display device according to claim 4, wherein the display module includes a panel in which the pixels are arranged in a matrix shape, a signal driver, a scan driver and opposing signal driver; signal lines

connected to the signal driver; scan lines connected to the scan driver; and opposing signal lines connected to the opposing signal driver; each of the pixels includes a signal electrode, opposing signal  
5 electrode and a switch element, the signal electrode is connected to one of the signal lines via the switch element, the opposing signal electrode is connected to one of the opposing signal lines, a first potential is applied to the signal electrodes provided for the  
10 pixels on a same line included in a same block unit, a second potential is applied to the opposing signal electrodes provided for the pixels on a same row included in the same block unit, a certain specific pattern is formed by the first and second potentials  
15 for the same block unit concerned and one of the common opposing signal lines is connected to the opposing signal electrodes provided for the pixels on the same line.

20 9. A display device according to claim 2, wherein the display module includes a panel in which the pixels are arranged in a matrix shape, a signal driver, a scan driver and opposing signal driver; signal lines connected to the signal driver; scan lines connected  
25 to the scan driver; opposing signal common lines connected to the opposing signal driver and opposing signal lines connected to the opposing signal common

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lines; each of the pixels includes a signal electrode, opposing signal electrode and a switch element, the signal electrode is connected to one of the signal lines via the switch element, the opposing signal electrode is connected to one of the opposing signal lines, a first potential is applied to the signal electrodes provided for the pixels on a same line included in a same block unit, a second potential is applied to the opposing signal electrodes provided for the pixels on a same row included in the same block unit, a certain specific pattern is formed by the first and second potentials for the same block unit concerned and one of different opposing signal lines is connected to the opposing signal electrodes provided for the pixels included in a different block unit.

10. A display device according to claim 3, wherein the display module includes a panel in which the pixels  
20 are arranged in a matrix shape, a signal driver, a scan driver and opposing signal driver; signal lines connected to the signal driver; scan lines connected to the scan driver; opposing signal common lines connected to the opposing signal driver and opposing  
25 signal lines connected to the opposing signal common lines; each of the pixels includes a signal electrode, opposing signal electrode and a switch element, the

signal electrode is connected to one of the signal lines via the switch element, the opposing signal electrode is connected to one of the opposing signal lines, a first potential is applied to the signal electrodes provided for the pixels on a same line included in a same block unit, a second potential is applied to the opposing signal electrodes provided for the pixels on a same row included in the same block unit, a certain specific pattern is formed by the first and second potentials for the same block unit concerned and one of different opposing signal lines is connected to the opposing signal electrodes provided for the pixels included in a different block unit.

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11. A display device according to claim 4, wherein the display module includes a panel in which the pixels are arranged in a matrix shape, a signal driver, a scan driver and opposing signal driver; signal lines connected to the signal driver; scan lines connected to the scan driver; opposing signal common lines connected to the opposing signal driver and opposing signal lines connected to the opposing signal common lines; each of the pixels includes a signal electrode, opposing signal electrode and a switch element, the signal electrode is connected to one of the signal lines via the switch element, the opposing signal

electrode is connected to one of the opposing signal lines, a first potential is applied to the signal electrodes provided for the pixels on a same line included in a same block unit, a second potential is  
5 applied to the opposing signal electrodes provided for the pixels on a same row included in the same block unit, a certain specific pattern is formed by the first and second potentials for the same block unit concerned and one of different opposing signal lines  
10 is connected to the opposing signal electrodes provided for the pixels included in a different block unit.

12. A display device according to claim 2, wherein the  
15 display module includes a panel in which the pixels  
are arranged in a matrix shape, a signal driver, a  
scan driver and opposing signal driver; signal lines  
connected to the signal driver; scan lines connected  
to the scan driver; opposing signal common lines  
20 connected to the opposing signal driver and opposing  
signal lines connected to the opposing signal common  
lines; each of the pixels includes a signal electrode,  
opposing signal electrode and a switch element, the  
signal electrode is connected to one of the signal  
25 lines via the switch element, the opposing signal  
electrode is connected to one of the opposing signal  
lines, a first potential is applied to the signal

- electrodes provided for the pixels on a same line included in a same block unit, a second potential is applied to the opposing signal electrodes provided for the pixels on a same row included in the same block  
5 unit, a certain specific pattern is formed by the first and second potentials for the same block unit concerned and one of different opposing signal lines is connected to the opposing signal electrodes provided for the pixels included in a different block  
10 unit, and respective different opposing signal lines are connected to the opposing signal electrodes provided for the pixels on different lines included in the same block unit.
- 15 13. A display device according to claim 3, wherein the display module includes a panel in which the pixels are arranged in a matrix shape, a signal driver, a scan driver and opposing signal driver; signal lines connected to the signal driver; scan lines connected  
20 to the scan driver; opposing signal common lines connected to the opposing signal driver and opposing signal lines connected to the opposing signal common lines; each of the pixels includes a signal electrode, opposing signal electrode and a switch element, the  
25 signal electrode is connected to one of the signal lines via the switch element, the opposing signal electrode is connected to one of the opposing signal

lines, a first potential is applied to the signal electrodes provided for the pixels on a same line included in a same block unit, a second potential is applied to the opposing signal electrodes provided for 5 the pixels on a same row included in the same block unit, a certain specific pattern is formed by the first and second potentials for the same block unit concerned and one of different opposing signal lines is connected to the opposing signal electrodes 10 provided for the pixels included in a different block unit, and respective different opposing signal lines are connected to the opposing signal electrodes provided for the pixels on different lines included in the same block unit.

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14. A display device according to claim 4, wherein the display module includes a panel in which the pixels are arranged in a matrix shape, a signal driver, a scan driver and opposing signal driver; signal lines 20 connected to the signal driver; scan lines connected to the scan driver; opposing signal common lines connected to the opposing signal driver and opposing signal lines connected to the opposing signal common lines; each of the pixels includes a signal electrode, 25 opposing signal electrode and a switch element, the signal electrode is connected to one of the signal lines via the switch element, the opposing signal

electrode is connected to one of the opposing signal lines, a first potential is applied to the signal electrodes provided for the pixels on a same line included in a same block unit, a second potential is  
5 applied to the opposing signal electrodes provided for the pixels on a same row included in the same block unit, a certain specific pattern is formed by the first and second potentials for the same block unit concerned and one of different opposing signal lines  
10 is connected to the opposing signal electrodes provided for the pixels included in a different block unit, and respective different opposing signal lines are connected to the opposing signal electrodes provided for the pixels on different lines included in  
15 the same block unit.

15. A display device according to one of claims 1 through 14, wherein the number of pixels in line direction in a block unit is larger than the number of  
20 pixels in row direction in the block unit.

16. A display device according to one of claims 1 through 14, wherein a combination of a plurality of pixels which constitute a block unit is varied.

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17. A display device according to one of claims 1 through 14, wherein the display module is a projection

type display, and the projection type display includes a projection pattern display source which displays the specific patterns and a pattern display element, and the pattern display element includes a pair of substrates on which a transparent electrode is formed, a photo conductive layer formed on the transparent electrode and an LC layer sandwitched by the pair of substrates.

10 18. A display device according to one of claims 1 through 14, wherein the display module is constituted as a means for displaying picture images by sequentially adding the specific patterns.

15 19. A display device according to one of claims 1 through 14, wherein the display module is a means for displaying picture images while computing the specific patterns in the respective pixels and adding the same therein.

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25 20. A display device according to claim 19, wherein the display module includes a panel in which the pixels are arranged in a matrix shape, a signal driver, a scan driver and a common electrode driver; signal lines connected to the signal driver; scan lines connected to the scan driver; and common electrode lines connected to the common electrode

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driver, each of the pixels is provided with an adder-subtractor for adding the specific patterns, and the signal lines of which number is equal to the number  $N_p$  of specific patterns to be added are connected to the  
5 adder-subtractor.

21. A display device according to claim 20, wherein  
the panel is an LC panel provided with an LC for the  
pixels, each of the pixels is provided with  
10 capacitance elements of more than  $N_P$  pieces  
corresponding to the number of the specific patterns  
to be added which hold signals sent via the concerned  
signal lines, and means for coupling the capacitance  
element concerned and the capacitance of the LC.

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22. A display device according to one of claims 1 through 14, wherein each circuit which constitutes each pixel includes a sample hold means for digital signal and another sample hold means for analogue signals.

23. A display device according to claim 22, wherein  
the signal held in the sample hold means for analogue  
signals is rewritten depending on the signal held in  
25 the sample hold means for digital signals to provide a  
same signal for the pixels included in a same block  
unit.

24. A display device according to one of claims 1 through 14, wherein the picture image signal generation unit includes the computing circuit.
- 5 25. A display device according to one of claims 1 through 14, wherein the display control unit includes the computing circuit.
- 10 26. A display device according to one of claims 1 through 14, wherein the display module includes the computing circuit.
- 15 27. A display device according to one of claims 1 through 14, wherein the display module is an LC display module.

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